

Radiation Detector Simulator

Customs officers Training

Nuclear Science Training
Course NUCLEONICA
Monaco 2010

Teófilo Moltó Caracena

Background

- Background:
 - Computer engineer
 - PhD Student
- Affiliation:
 - JRC Ispra Site
 - IPSC



UNIVERSIDAD
POLITECNICA
DE VALENCIA



JRC

EUROPEAN COMMISSION

ipSc

**Institute for the Protection
and Security of the Citizen**

Current work

- JRC, IPSC, Nuclear Security Unit (2011 -> ITU)
- PhD Grant holder.
- Topic of PhD is simulating behaviours of radiation, sources and detectors.
- Detector simulator for training purposes.

Motivation

Radioactive
materials
traffic



Training of
non
specialist
personnel



Limitations
of current
methods



Virtual Environment



Customs
area

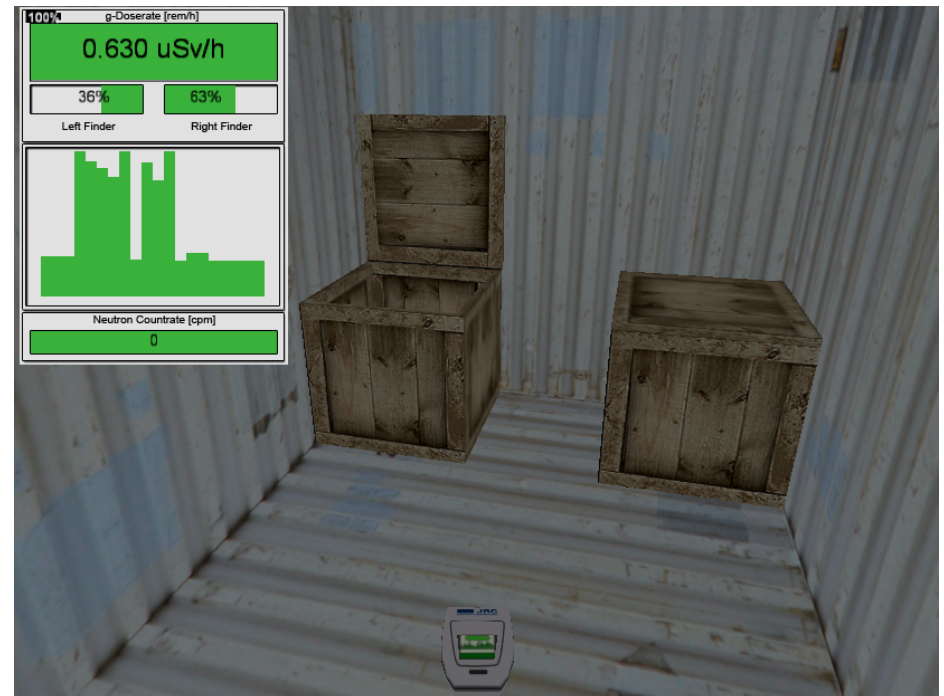
Vehicle to
inspect

Radiation
detector



Radiation modeling

- Monte Carlo algorithms. Too slow!
- 3D map, offline load.
- Obstacle attenuation.
- Simplified MC?



NUCLEONICA course Motivation

- Learn about modelling radiation, sources and detectors
- Dosimetry calculation implementation.